In the Claims

1. (Currently Amended) A CT detector comprising:

a scintillator array having a plurality of scintillators arranged along a first plane;

a photodiode array having a plurality of photodiodes arranged along a second plane different from the first plane and parallel to the first plane, and configured to detect illumination of the scintillator array;

the first plane and the second plane orthogonal to a direction of x-ray incidence on the scintillator array; and

an optical mask arranged and extended in major part along a third plane parallel to the first and the second planes, and disposed between the scintillator array and the photodiode array without encroachment upon any of the first plane or the second plane, the optical mask configured to reduce optical transference between a scintillator and a neighboring photodiode, the optical mask located closer to the scintillator array than the photodiode array.

2. (Original) The CT detector of claim 1 wherein the optical mask includes a grid of intersecting optical inhibitor elements.

3. (Original) The CT detector of claim 2 wherein the grid is dimensionally equivalent to the scintillator array and the photodiode array.

4. (Original) The CT detector of claim 1 wherein the optical mask is defined by a plurality of parallel optical inhibitor elements extending transversely along a width of the photodiode array.

5. (Original) The CT detector of claim 1 wherein the optical mask is formed of optical absorbing material.

6. (Original) The CT detector of claim 1 wherein the optical mask is formed of optical reflecting material.

7. (Original) The CT detector of claim 1 wherein each scintillator/photodiode combination defines a detector cell and wherein the optical mask is configured to reduce cross-talk between adjacent cells.

8. (Currently Amended) A CT detector comprising:

a first scintillator and a second scintillator positioned adjacently to one another and distanced from one another by a given width;

a first photodiode operationally aligned to detect illumination of the first scintillator and a second photodiode operationally aligned to detect illumination of the second scintillator; and

at least one mask element of optically absorbing material disposed in a plane disposed between the first and the second scintillators and the first and the second photodiodes to reduce optical transference between the first scintillator and the second photodiode and the second scintillator and the first photodiode, the at least one mask element having a width that exceeds the given width separating the first and the second scintillators from one another, the plane avoids intersection with any of the first scintillator, the second scintillator, the first photodiode, or the second photodiode, the at least one mask element located closer to the first and the second scintillators than the first and the second photodiodes.

9. (Previously Presented) The CT detector of claim 8 wherein the first and the second scintillators are spaced from one another by a lateral gap.

10. Canceled

11. Canceled

12. (Previously Presented) The CT detector of claim 8 wherein each scintillator is spaced from its corresponding photodiode by a vertical gap.

13. (Original) The CT detector of claim 12 wherein each mask element has a thickness at least equal to a height of the vertical gap.

14. (Original) The CT detector of claim 8 wherein the at least one mask element is fabricated of at least black polyamide.

15. (Currently Amended) A CT system comprising:

a rotatable gantry having a bore centrally disposed therein;

a table movable fore and aft through the bore and configured to position a subject for CT data acquisition;

a high frequency electromagnetic energy projection source positioned within the rotatable gantry and configured to project high frequency electromagnetic energy fan beam toward the subject; and

a detector array disposed within the rotatable gantry and configured to detect high frequency electromagnetic energy projected by the projection source and impinged by the subject, the detector array including:

an array of scintillators located in a layer;

an array of photodiodes located in a layer; and

an array of optical cross-talk inhibitors formed of optically absorbent material and interstitially layered between, without encroachment upon, the layer of the array of scintillators and the layer of the array of photodiodes, the array of optical cross-talk inhibitors located closer to the layer of the array of scintillators than the layer of the array of photodiodes, the array of optical cross-talk inhibitors located in a layer that comprises a substantially same major orientation as the layer of the array of scintillators and the layer of the array of photodiodes.

16. Canceled

17. Canceled

18. (Original) The CT system of claim 15 wherein the array of optical cross-talk inhibitors is fabricated from light absorbent silicon.

19. (Original) The CT system of claim 15 wherein the array of optical cross-talk inhibitors is fabricated from opaque materials.

20. (Currently Amended) A method of CT detector manufacture comprising the steps of:

providing a cellular arrangement of scintillators;

providing a cellular arrangement of photodiodes, each photodiode configured to detect illumination of a corresponding scintillator;

providing an optical cross-talk mask; and

arranging the cellular arrangement of scintillators, the cellular arrangement of photodiodes, and the optical cross-talk mask in a multi-planar stack wherein each of the cellular arrangements and the optical cross-talk mask are arranged orthogonal to a central axis of x-ray incidence on the cellular arrangement of scintillators such that the optical cross-talk mask is sandwiched between the cellular arrangement of scintillators and the cellular arrangement of photodiodes ~~and~~, such that the optical cross-talk mask is located closer to the cellular arrangement of scintillators than the cellular arrangement of photodiodes, and such that in the multi-planar stack a plane of the cellular arrangement of scintillators, a plane of the cellular arrangement of photodiodes, and a plane of the optical cross-talk mask comprise a substantially same major orientation.

21. (Original) The method of claim 20 wherein the optical cross-talk mask includes a cellular arrangement of mask elements.

22. (Original) The method of claim 20 wherein the step of providing an optical cross-talk mask includes the step of forming a grid of light-absorbing elements.

23. (Original) The method of claim 20 wherein the step of providing an optical cross-talk mask includes the step of forming a grid of light-reflective elements.

24. (Original) The method of claim 20 wherein the optical cross-talk mask is formed of one of:

black polyamide;

metal;

doped silicon; and

opaque material(s).

25. (Original) The method of claim 20 wherein the optical cross-talk mask is constructed to reduce cross-talk between a scintillator and a neighboring photodiode.

26. (Previously Presented) The CT detector of claim 1 wherein at least a majority of the optical mask is disposed adjacent to the scintillator array.

27. (Previously Presented) The CT detector of claim 8 wherein a portion of the mask element is disposed adjacent to the first and second scintillators.

28. (Previously Presented) The CT system of claim 15 wherein at least a majority of the array of optical cross-talk inhibitors is disposed adjacent to the array of scintillators.

29. (Currently Amended) The method of claim 20 wherein the step of arranging includes the step of arranging the cellular arrangement of scintillators, the cellular arrangement of photodiodes, and the optical cross-talk mask in the multi-planar stack ~~wherein~~ such that each of the cellular ~~arrangement~~ arrangements and the optical cross-talk mask are arranged orthogonal to the central axis of x-ray incidence on the cellular arrangement of scintillators such that at least a majority of the optical cross-talk mask is disposed adjacent to the cellular arrangement of scintillators.